

Claims

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3 *Sub A1*
4 1. A method, including steps of
5 repeatedly reviewing monitoring statistics regarding operation of a file
6 server, said steps of reviewing being performed at least as often as a selected time period;
7 processing said monitoring statistics using a diagnostic software module, in
8 response to said steps of repeatedly reviewing;
9 whereby a result of said steps of processing includes a diagnosis of a be-
10 havior of said file server.

11 *Sub B1*
12 2. A method as in claim 1, wherein said diagnostic software module
13 includes a pattern matching system and a rule-based inference system

14 3. A method as in claim 1, wherein said monitoring statistics include
15 information gathered by at least a first and at least a second software module, said first
16 and second software modules being disposed at differing levels within an operating sys-
17 tem of said file server.

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19 4. A method as in claim 1, wherein said monitoring statistics include
20 information gathered by at least one software module within an operating system of said
21 file server.
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5. A method as in claim 1, wherein said selected time period is less
2 than 10 seconds.

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6. A method as in claim 1, wherein said steps of processing are respon-
4 sive to a usage profile for said file server.
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7. A method as in claim 6, wherein said usage profile includes infor-
8 mation regarding whether use of said file server includes usage as an ISP, a development
9 environment, a mail server, or otherwise.

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8. A method, including steps of
11 selecting a set of parameters for a first communication protocol;
12 attempting to communicate, between a point inside a file server and a point
13 outside said file server, using a second communication protocol, said second communica-
14 tion protocol making use of said first communication protocol;
15 reviewing a result of said steps of attempting to communicate; and
16 altering said set of parameters, in response to a result of said steps of re-
17 viewing.
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9. A method as in claim 8, wherein said steps of altering are performed
20 at least as often as a selected time period of less than ten seconds.
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Sub B2
10. A method as in claim 8, wherein said steps of altering are performed
2 repeatedly, whereby a resulting set of parameters allows substantial communication be-
3 tween said first point and said second point.

Sub A3
11. A method as in claim 8, wherein said steps of attempting to commu-
6 nicate are performed using at least one hundred differing said sets of parameters.

Sub A4
12. A method, including steps of
9 imposing combined constraints on diagnosis of possible errors, in response
10 to known logical coupling between monitoring statistics gathered at multiple logical lev-
11 els of software modules within a file server; and
12 chaining constraints from multiple logical levels together;
13 whereby a number of possible errors deduced as possible from the various
14 monitoring statistics are limited to a relatively small number.

Sub A4
13. A method, including steps of
17 tracking configuration changes to a file server;
18 relating changes in known monitoring statistics to timing of said hardware
19 and software configuration changes; and
20 determining, in response to said steps of tracking and of relating, a configu-
21 ration change most likely to be responsible for an error or other failure in said file server.

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14. A method as in claim 13, including steps of suggesting activities to
2 reverse said configuration changes so as to place said file server in an operating state.

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4 15. A method as in claim 13, wherein said configuration changes include
5 hardware and software configuration changes.